Number Work

In the table below, colour the boxes of the numbers from 1 to 10, red; the boxes of the numbers 11 to 20, green; ..... . Thus colour all the boxes, using different colours.

99	19	78	45	59	80	67	98	46	47
18	82	79	8	40	39	97	5	68	26
51	4	58	88	13	75	17	95	52	16
83	81	71	34	87	1	96	38	25	27
32	77	2	76	12	63	53	60	9	37
65	10	100	14	64	24	11	94	93	36
31	72	41	55	29	54	22	35	3	48
84	30	15	6	86	23	62	61	70	69
57	66	56	73	33	89	7	42	92	49
44	85	28	74	20	50	90	91	21	43

Writing the numbers from 26 to 99 in words.

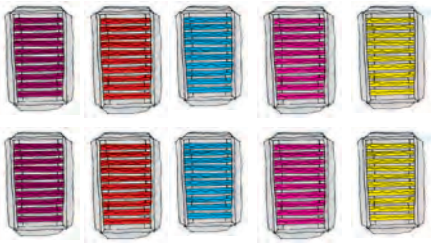
26	twenty-six	27	twenty-seven	28	twenty-eight	29	twenty-nine	30	thirty
31	thirty-one	32	thirty-two	33	thirty-three	34	thirty-four	35	thirty-five
36	thirty-six	37	thirty-seven	38	thirty-eight	39	thirty-nine	40	forty
41	forty-one	42	forty-two	43	forty-three	44	forty-four	45	forty-five
46	forty-six	47	forty-seven	48	forty-eight	49	forty-nine	50	fifty
51	fifty-one	52	fifty-two	53	fifty-three	54	fifty-four	55	fifty-five
56	fifty-six	57	fifty-seven	58	fifty-eight	59	fifty-nine	60	sixty
61	sixty-one	62	sixty-two	63	sixty-three	64	sixty-four	65	sixty-five
66	sixty-six	67	sixty-seven	68	sixty-eight	69	sixty-nine	70	seventy
71	seventy-one	72	seventy-two	73	seventy-three	74	seventy-four	75	seventy-five
76	seventy-six	77	seventy-seven	78	seventy-eight	79	seventy-nine	80	eighty
81	eighty-one	82	eighty-two	83	eighty-three	84	eighty-four	85	eighty-five
86	eighty-six	87	eighty-seven	88	eighty-eight	89	eighty-nine	90	ninety
91	ninety-one	92	ninety-two	93	ninety-three	94	ninety-four	95	ninety-five
96	ninety-six	97	ninety-seven	98	ninety-eight	99	ninety-nine		

✍ **For teachers :** Write all the numbers on the floor or place number cards instead. Have the children stand around them and play the game of looking for numbers in the proper sequence.

Introducing 'Hundred'

Tony : Here are one hundred candies.

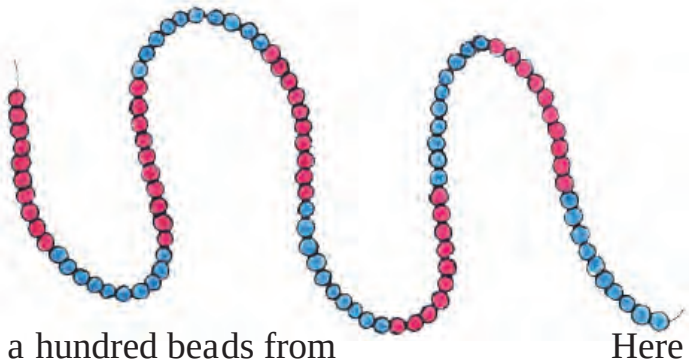
Salma : I counted these bangles. They are 10 tens.



Nandu : I scored a century !

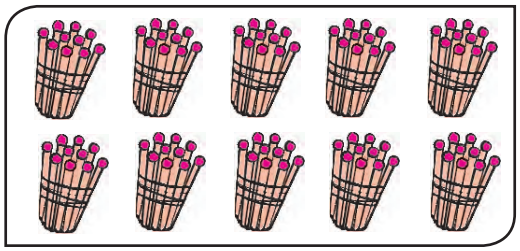
Sonu : I bought a hundred oranges.

Tai : All of you have the same number of things. But each of you said it in a different way. A century has a hundred units. Or simply, it's one hundred. Ten tens are also one hundred.

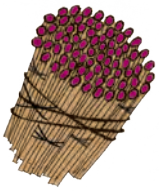


Sonu put a hundred beads from this string into a purse.

Here is a purse of 'a hundred'.



[ ] 'tens' of sticks makes one hundred sticks.



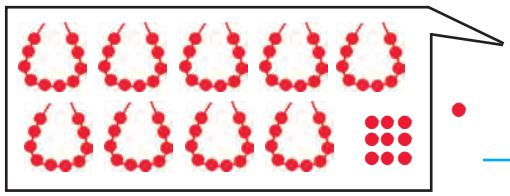
5 notes of 20 rupees each makes

[ ] rupees.

That is, 1 hundred rupees.

Whole hundreds / Hundreds

9 beads and 1 bead together make 10 beads.
A group of 10 things is called a ten.



T	U
9	9
+	1
100	

99 is the biggest two-digit number. When we add 1 to it, we get the three-digit number 100.

The new place on the left in the three-digit number 100 is the place of 'Hundreds'.

100 means

H	T	U
1	0	0

100 is a three-digit number.

Two hundred

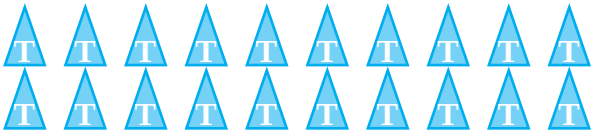
Three hundred

Four hundred

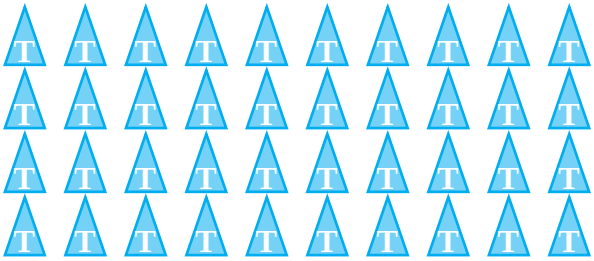
Five hundred

Nine hundred

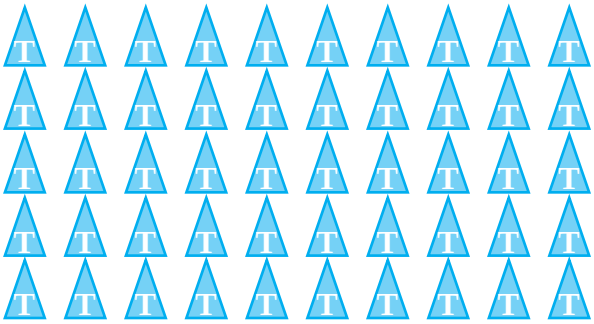
10 tens make a hundred.
That is, one hundred (100).



20 tens make 2 hundreds.
That is, two hundred (200).



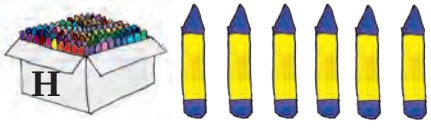
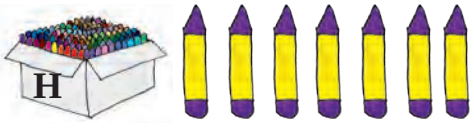
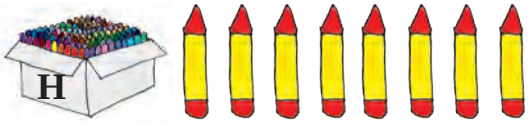
40 tens make 4 hundreds.
That is, four hundred (400).



50 tens means 5 hundreds.
That is, five hundred (500).

Three-digit numbers : Introduction

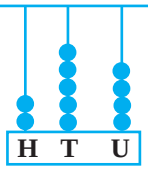
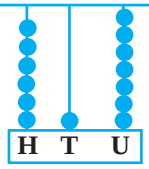
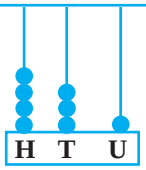
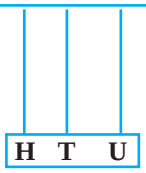
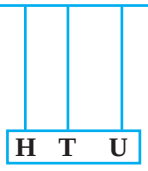
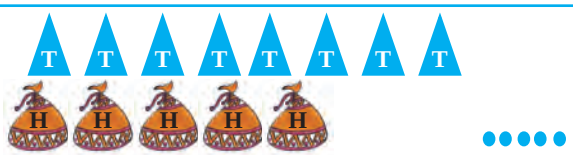
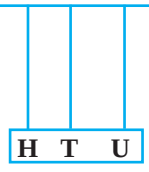
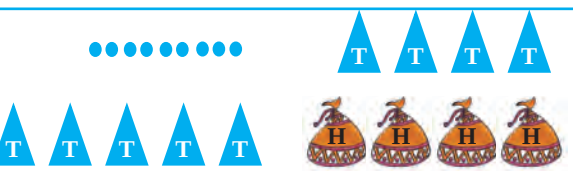
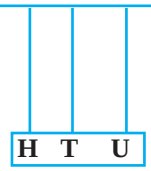
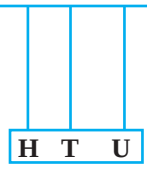
✦ **In the empty boxes, write the number in words.**

Crayons	Hundreds	Tens	Units	Number	
				In figures	In words
	1	0	1	101	A hundred and one
	1	0	2	102	A hundred and two
	1	0	3	103	
	1	0	4	104	
	1	0	5	105	
	1	0	6	106	
	1	0	7	107	
	1	0	8	108	
	1	0	9	109	
	1	1	0	110	

✍ **For teachers :** Get the children to write the numbers using a box of a hundred crayons, a packet of ten crayons and single crayons.

Three-digit numbers : Introduction

✦ **As shown in the table, string the right number of beads on the wires. Write the number in figures and in words.**

		254	Two hundred and fifty-four
		617	Six hundred and seventeen
			
			
			
			
			
			

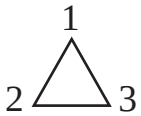
✍ **For teachers :** Give the children the task of making three-digit numbers using **purses** of hundred beads, **strings** of ten beads and some **single** beads. Give them a lot of practice in writing the correct number according to the value of the symbols used even when the purses, the strings and the single beads are arranged in different ways.

Three-digit numbers : Writing and Reading

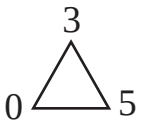
✦ Write the correct number in the box and read it aloud.

101	211	321	431	541	651	761	871	981
102	212		432		652	762	872	982
103	213	323		543				
104	214		434	544		764	874	
105		325	435		655		875	985
	216					766		
107	217	327	437	547	657		877	
		328	438			768		988
109	219				659			
110	220	330	440	550		770	880	990

✦ Make three-digit numbers using each of the given digits only once.

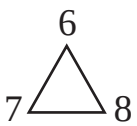


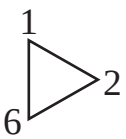
123, 132, 213, 231, 312, 321

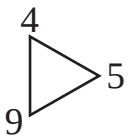


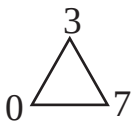
305, 350, 530, 503

Note that 035, 053 are not three-digit numbers because these numbers are written as 35 and 53 using only two digits.









Take any three-digit number. Change the digit in its hundreds place and make a new number. Likewise, change the digits in the tens and units places to make new numbers.

✍ **For teachers :** Make many different numbers using a tap for hundreds, a clap for tens and a snap of your fingers for units.

The number before; the number after

✦ Read the numbers in the number strips below.

99	100	101	102	103	104	105	106	107	108	109	110
215	216	217	218	219	220	221	222	223	224	225	226
399	400	401	402	403	404	405	406	407	408	409	410

✦ With the help of the number strips above, write the next number –

✤ 105, ☐ ✤ 220, ☐ ✤ 409, ☐ ✤ 219, ☐

✦ With the help of the number strips above, write the number just before –

✤ ☐ , 400 ✤ ☐ , 107 ✤ ☐ , 218 ✤ ☐ , 110

✦ With the help of the number strips above, write the numbers just before and just after –

✤ ☐ , 217 , ☐ ✤ ☐ , 100 , ☐ ✤ ☐ , 409 , ☐

✦ By how much is the next number bigger than the given number ? ☐

✦ By how much is the number just before a given number smaller than the given number ? ☐

✦ What is the number we get by adding 1 to 435 ? ☐

✦ What is the number we get by taking away 1 from 435 ? ☐

✦ Write the number just before and the number just after.

✤ 118 , 119 , 120 ✤ ☐ , 200 , ☐ ✤ ☐ , 391 , ☐

✤ ☐ , 599 , ☐ ✤ ☐ , 800 , ☐ ✤ ☐ , 707 , ☐

✦ Write any three numbers that come after the given number.

✤ 555, 600 , 650 , 977 ✤ 399, ☐ , ☐ , ☐

✦ Write any three numbers that come before the given number.

✤ 99 , 312 , 407 , 500 ✤ ☐ , ☐ , ☐ , 601

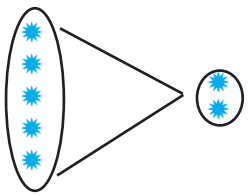
✍ **For teachers :** Give practice in telling the numbers that come before and after numbers like 100, 199, 300, 499, 201, 590.

Using symbols to show 'smaller' and 'bigger' ..... <, >

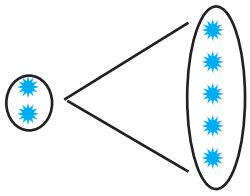
✦ **Say which number is bigger and which, smaller.**

Number	8, 2	77, 59	39, 9	14, 35	67, 32
Smaller Number					
Bigger Number					

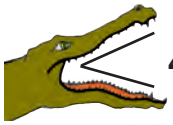
■ **Using the symbols**



5 > 2 is read as : 5 is bigger than 2.



2 < 5 is read as : 2 is smaller than 5.

27  **40**

27 < 40 is read as : 27 is less than 40.

91  **49**

91 > 49 is read as : 91 is greater than 49.

✦ **Write the correct symbol in the box.**

10 > 9	9 ☐ 10	5 ☐ 3	3 ☐ 5
50 ☐ 49	49 ☐ 50	23 ☐ 25	73 ☐ 75
500 ☐ 499	499 ☐ 500	500 ☐ 300	600 ☐ 400

Tony : We can tell the smaller number and bigger number if the two given numbers have two digits. But, what if one is a two-digit number and the other is a three-digit number ?

Tai : First tell me the biggest two-digit number.

Tony : That's easy ! 99 is the biggest of all the two-digit numbers. The next number after 99 is 100. And that's a three-digit number.

Tai : Then you know that a two-digit number may be 99 or a number smaller than 99. Hence, any two-digit number is smaller than 100. A three-digit number can be 100 or bigger than 100.

Tony : This tells us that a three-digit number is always bigger than a two-digit number.

Salma : Just as we know that a two-digit number is always bigger than a one-digit number, isn't it ?

Tai : Absolutely right !

Smaller and bigger numbers (continued)

Nandu : If we have two three-digit numbers, how do we tell which is bigger and which is smaller ?

Tai : Let's take some easy examples. Take the numbers 500 and 300. Which of these is the bigger number ?

Salma : 5 hundreds are bigger than 3 hundreds. So 500 > 300.

Tai : Now let's look at 325 and 625. Here the units and the tens of the two numbers are equal. But 6 hundreds are bigger than 3 hundreds.
So 625 > 325.

Tony : What to do if the units, tens and hundreds digits in two numbers are all different ?

Nandu : Let's take 495 and 812.

Tai : In 495, the number in the hundreds place is 4. It is smaller than the hundreds in 812. This is important. What is the next whole hundred number after 495 ?

Tony : That's 500. And 495 < 500.

Tai : 812 has 8 hundreds. We know that 500 < 800 and 800 < 812. So, 495 < 812. Got it ?

Tony : Yes. Not too difficult if we work it out like this.

Nandu : It means that if two three-digit numbers are given, the one with the bigger digit in the hundreds place is the bigger number.

✦ **Which is the bigger and which the smaller number ?**

721 ☐ 589 423 ☐ 723 600 ☐ 497

Salma : But, what if the digits in the hundreds place of both the numbers are the same ? Let's take 718 and 720.

Tai : That's easy, too. If the hundreds are the same, look at the numbers made by the tens and units.

Sonu : So we must compare 20 and 18 in 720 and 718, right ? 20 >18.
So, 720 > 718.

Tai : Correct ! If the hundreds in two numbers are the same, then the number with the bigger tens is the bigger number. And, if the hundreds as well as the tens are equal, then look at the units to decide which is the bigger number.

✦ **Put the right symbol <, > between the numbers in each pair.**

427 ☐ 267, 150 ☐ 501, 813 ☐ 79, 300 ☐ 624

Ascending and descending order

These are the marks that Tony, Sonu, Salma and Nandu got in Maths :
Tony 70, Salma 87, Sonu 79, Nandu 85.
Write their marks in ascending and descending order.
Ascending Order : 70, 79, 85, 87 Descending Order : 87, 85, 79, 70

✦ **Write the following numbers in ascending and descending order.**

Numbers	Ascending Order	Descending Order
55, 63, 40, 80		
69, 9, 59, 70		
14, 29, 47, 39		

✦ **Write the numbers 122, 360, 325 in ascending and descending order.**
Smallest number : 122
Biggest number : 360
Ascending Order : 122, 325, 360
It can also be written as
$122 < 325 < 360$
Descending Order : 360, 325, 122
It can also be written as
$360 > 325 > 122$

✦ **Write the numbers 801, 617, 847, 799 in ascending and in descending order.**
Smallest number : 617
Remaining numbers 801, 847, 799.
The smallest of these numbers : 799.
Remaining numbers, now : 801, 847.
The smaller of these two numbers : 801 and the last one 847.
Ascending Order : 617, 799, 801, 847
Descending Order : 847, 801, 799, 617

✦ **Ascending and descending order of numbers.**

Given Numbers	Ascending Order	Descending Order
217, 211, 215	211, 215, 217	217, 215, 211
500, 400, 100, 600	100, 400, 500, 600	600, 500, 400, 100
519, 419, 619	419, 519, 619	619, 519, 419
785, 757, 8, 81	8, 81, 757, 785	785, 757, 81, 8
15, 100, 81, 167	15, 81, 100, 167	167, 100, 81, 15

✦ **Write the following numbers in ascending and descending order.**

- 117, 69, 50, 8
- 912, 27, 356
- 88, 78, 75
- 888, 788, 688
- 217, 271, 270
- 315, 215, 515
- 500, 501, 499
- 105, 107, 101, 102
- 365, 73, 12, 116
- 527, 8, 324, 63
- 285, 407, 589, 360
- 909, 990, 999

Biggest and smallest numbers from given digits

Tai : Let's make three-digit numbers using the digits 2, 3 and 5.

Sonu : Do we use one digit only once ?

Tony : Yes ! Otherwise, we'll get too many numbers. 222, 232, 233, 323, 333, 235, 253.... so many numbers like these.

Salma : But if we use each digit only once, then, of course, we get only these numbers : 235, 253, 325, 352, 532, 523.

Tai : Ok. Now compare these numbers and decide which ones are smaller and which ones, bigger.

Tony : 532 and 523 have the biggest hundreds digits. If we compare these two, 32 is bigger than 23, so 532 > 523. So 532 is the biggest of all the numbers we can make from the digits 2, 3 and 5.

Salma : Of the numbers we made here, take those with 2 in the hundreds place. That is, 235 and 253. Now, 35 < 53. So 235 < 253.

Tai : Very good !

Nandu : Instead of making all the numbers from the given digits, couldn't we make the biggest and the smallest numbers straightaway ?

Tony : Yes, of course ! The biggest number will have the biggest digit in the hundreds place. Then, to make the bigger number from the remaining two digits, we put the bigger digit in the tens place.

Sonu : So, to make the biggest number, write the digits in the descending order. In our example, the biggest number is 532.

Salma : I'll say how to make the smallest number from three given digits. Write the smallest digit in the hundreds place and the biggest digit in the units place. The remaining digit goes in the tens place. It means that if we write the given digits in the ascending order we get the smallest three-digit number. Here, it's 235.

Sonu : Suppose there's a zero given. Do we still do the same ?

Tai : No. If we do that we'll get a two-digit number and not a three-digit number. Let's take 5, 0 and 2. If there's zero in the hundreds place, we get the numbers 025 or 052. But these can be written as 25 and 52 in two digits. So they are really two-digit numbers.

Nandu : So if a zero is given, let's put the smaller non-zero number in the hundreds place.

Salma : Then we'll write zero in the tens place and the remaining digit in the units place.

Tai : Yes. So the smallest three-digit number from the digits 5, 0 and 2 is 205.

✦ **Make the biggest and the smallest three-digit numbers using the given digits.**

- 9, 4, 6
- 7, 0, 4
- 3, 9, 5
- 8, 5, 9

The expanded form of a number

Tai : How many hundreds, how many tens and how many units are there in 824 ?

Sonu : 824 means 8 hundreds, 2 tens and 4 units.

Tony : This means that 824 = 800 + 20 + 4.

Nandu : By the same method, how to write 203 ?

Salma : 203 = 200 + 3.

Tai : That is right, of course. But it is better to write the expanded form as 203 = 200 + 0 + 3 because it tells us clearly the digits in the hundreds, tens and units places. In the same way, the expanded form of 80 will be 80 + 0. And if we take the single-digit number 9, its expanded form can only be 9 !

✦ **Write the expanded form of the following numbers.**

✤ 998 ✤ 34 ✤ 287 ✤ 534 ✤ 76 ✤ 301 ✤ 90 ✤ 45 ✤ 13

Tai : Now, can you write the number from its expanded form ?
Take 500 + 30 + 7. This is the expanded form of a number.

Salma : I'll try. 500 + 30 + 7 = 537

Tai : Very good !

✦ **Write the number from its expanded form.**

✤ 700 + 0 + 5
✤ 30 + 9
✤ 40 + 4
✤ 400 + 60 + 7
✤ 200 + 10 + 1
✤ 300 + 0 + 6
✤ 800 + 0 + 0
✤ 100 + 50 + 0

Place value

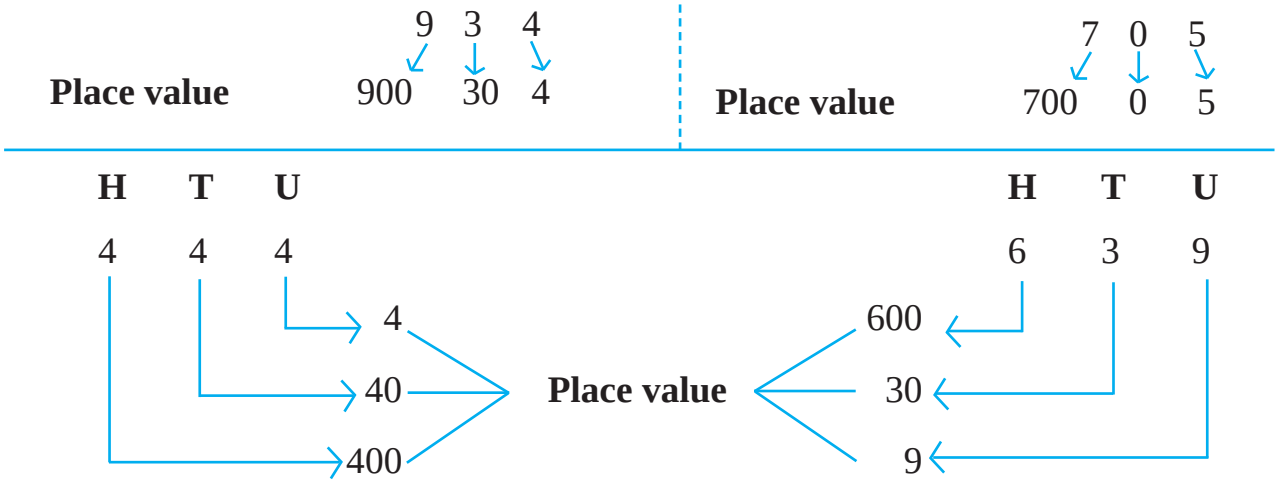
Tai : Tell me, of which number is this the expanded form : 400 + 40 + 7 ?

Nandu : Easy ! 447.

Salma : That's funny. First we used the digit 4 for 400 and then we used it for 40.

Tai : You must remember that the place of a digit determines its value. The value of the 4 in the hundreds place is 400, but the value of 4 in the tens place is 40. The 7 in the units place is equal to just 7. The value that a digit has according to its place in a number is called its place value.

Tai : In the number 576, the place value of 5 is 500, the place value of 7 is 70 and that of 6 is 6. Now, let's look at some other examples.



✦ **Write the place values of the underlined digits.**

9<u>1</u>9 , 1<u>3</u>5 , 2<u>0</u> , 30<u>5</u> , <u>4</u>80 , <u>3</u>2

■ A number and its expanded form : Folding Fun

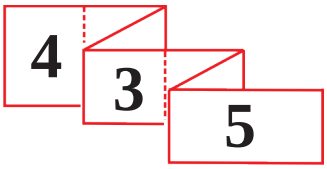
Tai : Let's make a folding card to show a three-digit number and its expanded form.

4	**00**	**+**	**3**	**0**	**+**	**5**

Take a strip of paper and fold it into seven equal parts as shown alongside. Think of a three-digit number. Say, 435.

Write the expanded form of this number on the paper strip as shown above.

Now fold the paper along the bold lines as shown in the figure alongside. By folding the paper, '00+' and '0+' are hidden and only the number 435 can be seen.

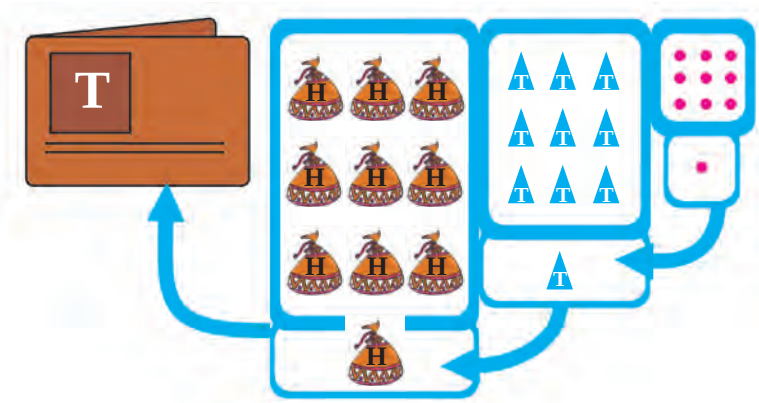


4	**3**	**5**

Thus, we can show the number when the paper strip is folded and its expanded form when it is unfolded.

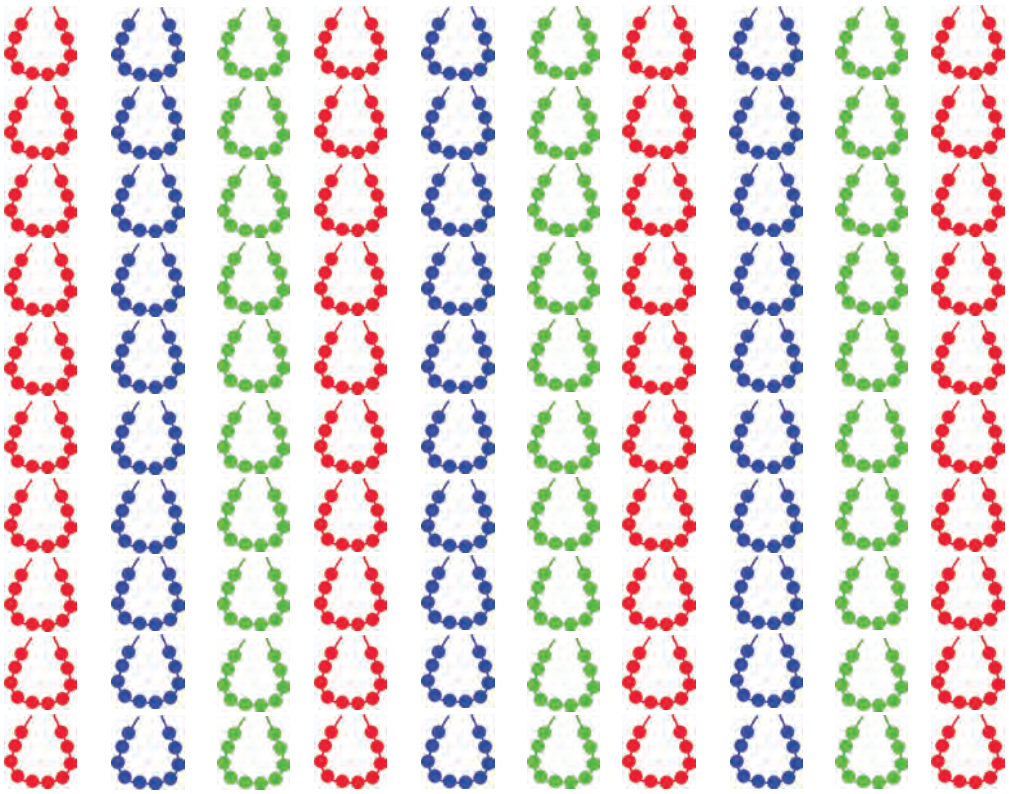
✍ **For teachers :** Give children the opportunity to grasp well the meaning of 'the expanded form' of a number and the 'place value' of a digit by making paper strips for many different three-digit numbers.

Introducing the Number 1000



TH	H	T	U
1	1	1	
	9	9	9
	+		1
	10	10	10
1	0	0	0

We get 100 when we add 99 and 1 (99 + 1 = 100). Now let us add 1 to 999 in vertical arrangement. 9 units + 1 unit make 10 units. That makes 1 ten, which is carried over. Now, 9 tens and 1 ten make 10 tens which is 1 hundred. 9 hundreds and 1 hundred make 10 hundreds. This again gives us a 1 which has to be carried over. So, we make a new place for this carried over 1. This is the 'Thousands' place. In the number 1000, there is 1 in the thousands place and there are zeros in all other places. This number is read as 'one thousand'.



10 beads in 1 string, then, 1000 beads in 100 such strings.
Hence, 100 tens also make 1000.